

LITVINOVA, Ye.V.; BLINOVA, G.A.; DEMIN, V.N.; SHAL'NEVA, T.S.

Evaluation of cytodiagnosis of cancer of distal segments of the large intestine. Top.onk. 1 no.5:57-63 '55. (MLA 10:1)

1. Iz kafedry onkologii (zav. - prof. A.I.Rakov) Gosudarstvennyy institut dlya usovershenstvovaniya vrachey im. S.M.Kirova na base Instituta onkologii AMN SSSR (dir. - chlen-korr. AMN SSSR prof. A.I.Serebrov) Adres avtorov: Leningrad, Kamenny ostrov, 2-ya Berezovaya allya, d.3. Institut onkologii AMN SSSR.  
(INTESTINE LARGE, neoplasms,  
diag., cytol.)

*LITVINOVA, Ye. V.*

LITVINOVA, Ye. V., dotsent (Leningrad, 68, pr. Mayorova, d.36, kv.29)

Arterial blood supply to the large intestine and its significance in surgery of cancer. Vest.khir. 75 no.1:29-36 Ja-F '55. (MLRA 8:4)

1. Iz kafedry onkologii (zav. prof. A.I.Rakov) Gosudarstvennogo ordena Lenina instituta usovershenstvovaniya vrachey im. S.M.Kirova.

(INTESTINE, LARGE, neoplasms,  
surg., anat. aspects of arteries)

LITVINOVA, Ye.V., kandidat meditsinskikh nauk; CHAKLIN, A.V., kandidat  
meditsinskikh nauk.

Interrepublics conference on cancer and precancer of the mammary  
gland. Vop. onk. 2 no.1:117-125 '56 (MIRA 9:4)

(MAMMARY GLANDS--CANCER)

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(MEDICINE--ABSTRACTS)

DEMIN, V.N. (Leningrad, 101, B.Pushkarskaya ul., d.no.65, kv.9); LITVINOVA,  
Ye.V. (Leningrad, pr. Mayorova, d.no.36, kv. 29)

Intraosseous administration of embichine in the treatment of certain  
diseases [with summary in English] Vop.onk. 2 no.4:475-477 '56.

(MLRA 9:12)

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onkologii AMN SSSR (dir. - chlen-korrespondent AMN SSSR prof. A.I.  
Serebrov)

(NITROGEN MUSTARDS, administration,  
intraosseous (Rus))

LARIONOV, L.F. (Moskva, Kotel'nicheskaya nab., d. 1/15, kv. 301); LIVVINOVA,  
Ye. Y.; Kholdin, S.A. (Leningrad, 129, Kamenny ostrov, 2-ya  
Berezovaya alleya, d. 3, Institut onkologii AMN SSSR)

Chemotherapy for metastases of mammary gland cancer [with summary  
in English] Vop. onk., 2 no.6:717-722 '56 (MLRA 10:4)

1. Iz Instituta onkologii AMN SSSR (dir.-chl.-korr. AMN SSSR prof.  
A.I. Serebrov) i kafedry onkologii Gosudarstvennogo instituta  
usovershenstvovaniya vrachey im. S.M. Kirova (dir.-prof. N.I. Blinov)  
(BREAST NEOPLASMS, ther.  
N-bis(2-chloroethyl)-2-chloropropylamine in metastatic  
cancer)  
(NITROGEN MUSTARDS, ther. use  
N-bis(2-chloroethyl)-2-chloropropylamine in metastatic  
breast cancer)

LITVINOVA, Ye.V. dotsent

Clinical and morphologic characteristics of polyps in the colon  
and rectum. Vest. khir. 77 no.1:71-81 Ja '56 (MLRA 9:5)

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instituta usovershenstvovaniya vrachey imeni S.M. Kirova i  
Instituta onkologii AMN SSSR.

(POLYPI

colon & rectum, clin. aspects & morphol.)

(COLON, neoplasms

polypi, clin. aspects & morphol.)

(RECTUM, neoplasms

same)

LITVINOVA, Ye.V., dotsent (Leningrad, pr. Mayorova, d.36, kv.29)

Direct results of surgical treatment of colic cancer [with summary in English, p.153]. Vest.khir. 77 no.12:65-73 D '56. (MLA 10:2)

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(COLON, neoplasms  
surb., statist.)



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Vop.onk. 3 no.3:365-368 '57. (MIRA 10:8)

1. Leningrad, P-129, 2-ya Berezovaya alleya, d.e, Institut  
onkologii AMN SSSR  
(BIBLIOGRAPHY--ONCOLOGY)

ЛИТВИНОВА, Ye. V.

CHAKLIN, A.V., kand.med.nauk; DEMIN, V.N., kand.med.nauk; LITVINOVA, Ye.V.,  
kand.med.nauk

The problem of lung cancer; a review of a conference on lung cancer.  
Khirurgiya 33 no.6:137-146 Je '57. (MIRA 10:12)  
(LUNGS--CANCER)

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shenstvovaniya vrachey im. S.M.Kirova i Instituta onkologii AMN  
SSSR (dir. - prof. A.I.Serebrov).

(COLON, neoplasms,  
polyposis, diag. & management)

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biolog. of dissertations (Rus))

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i Instituta onkologii AMN SSSR (dir. - prof. A. I. Serebrov) Adres  
avtorov: Leningrad, Kamenny ostrov, 2-ya Berezovaya alleya, 3,  
Institut onkologii AMN SSSR.  
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cancer of the large intestine complicated by obstruction. Vest.khir.  
83 no.8:94-98 Ag '59. (MIRA 13:1)

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(COLON neoplasms)  
(COLOSTOMY)  
(INTESTINAL OBSTRUCTION etiol.)

LITVINOVA, Ye.V.

Rearrangement of the vascular architectonics of the large intestine in different anatomical types of cancerous tumors.  
Trudy Inst. onk. AMN SSSR no.3:32-42 '60 (MIRA 16:12')

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(TULARMIA, immunol.

vaccine, dry living, use in determ of allergic skin reaction)

(VACCINES AND VACCINATION

tularemia dry living vaccine use in determ of allergic skin reaction)

(ALLERGY, etiol. and pathogen.

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LITVINOVICH, A. N.

~~LITVINOVICH, A. N.~~

Problems in methods of studying secondary minerals in complex  
Altai ores. Trudy Alt. Gornii AN Kazakh. SSR 4:3-14 '57. (MIRA 11:1)  
(Altai Territory--Mines and mineral resources)

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Methods of processing and utilizing sample analyses. Trudy  
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LITVINOVICH, A.N.; LOGINOVA, M.D.

Trace elements in Leninogorsk deposit ores. Trudy Alt. GMI  
AN Kazakh. SSR 9:92-103 '60. (MIRA 14:6)

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Kazakhstanskoye geologicheskoye upravleniye (for Loginova).  
(Leninogorsk region—Nonferrous metals)  
(Trace elements)

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[Method for studying rare trace elements in complex metal ores] Metodika izucheniia redkikh raseiannykh elementov v polimetallicheskiikh rudakh. Alma-Ata, Izd-vo Akad. nauk Kazakhskoi SSR, 1961. 104 p. (MIRA 14:9)

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(Kalba Range--Pegmatites)  
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LITVINOVICH, A.N.

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1. Altayskiy gorno-metallurgicheskiy nauchno-issledovatel'skiy institut AN KazSSR, Ust'-Kamenogorsk.

LITVINOVICH, A.N.

Using sampling data to determine the distribution of silver in  
ores. Trudy Alt.GMNI AN Kazakh.SSR 12:56-60 '62. (MIRA 15:8)  
(Silver ores)

LITVINOVICH, A.N.

Determining relations and ratios of the contents of chemical  
elements. Trudy Akad. Nauk Kazakh. SSR 12:61-63 '62. (MIRA 15:8)

(Mineralogical chemistry)

LITVINOVICH, A.N.; BESPAYEV, Kh.A.; MAN'KOV, B.V.; SITNIKOV, K.F.

Distribution of rare and dispersed elements in the ores of the  
Tishinka deposit. Vest. AN Kazakh. SSR 20 no.10:56-63 0 '64.

(MIRA 17:11)

11 NOV 1964 6.11

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NY 100-65-118-181. (NYC 100-)



AUTHOR: Litvinovich, G., Engineer

SOV/ 84-58-3-26/52

TITLE: The Il-18 Airliner - Power Plant (Samolet Il-18 - Silovaya ustanovka)

PERIODICAL: Grazhdanskaya aviatsiya, 1958, Nr 3, pp 16-17 (USSR)

ABSTRACT: This article, dealing with the NK-4 power plant designed by N.D. Kuznetsov and the AI-20 designed by A.G. Iveshenko, contains a general description and the following technical data. The power of both the NK-4 and the AI-20 is 4,000 HP, 90 percent of which is applied to the propeller, 10 percent to the jet. The NK-4 is said to be of relatively small dimensions and weight, and has a smaller specific fuel consumption than any other engine of a similar type. The diameter of the 4-blade propeller is 4.5 m. The take-off run of the Il-18 is only 600 to 700 m. Landing run is much shorter because of propeller braking. The NK-4 consumes 2 to 2.5 times less fuel than turbojet power plants. The exhaust nozzles of the engines are placed above the wing and extended to its trailing edge. Fuel and oil leads, as well as the tanks, are below the exhaust nozzles. The fuel supply of the aircraft is 18 tons, and is carried in rubber tanks occupying the full length of the wing. There is an automatic fire-extinguishing system in each section of the nacelles. There are three ventilated sections, separated by a titanium firewall, in each nacelle. In addition there are two large containers in the wing consoles. An important part of the power plant is the propeller speed regulator, which keeps its revolutions constant. Two photographs accompany the text.

Card 1/1

1. Aircraft--USSR
2. Airplane engines--Design
3. Airplane engines--Operatic
4. Aircraft--Take-off
5. Fuel--Consumption

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2. USSR (600)

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SO: SUM 284, 26 Nov 1954

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LITVINOVICH, N.V.

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(Kazakhstan--Geology, Stratigraphic) (MLRA8:12)

LITVINOVICH, N.V.

Materials on the study of middle Devonian fauna of the Far East  
(Dep River Basin), Trudy MGRI no.26:240-245 '54. (MIRA 8:12)  
(Dep Valley--Paleontology)

LITVINOVICH, N.V.

Carboniferous and Permian deposits of the western part of central  
Kazakhstan. *Biul.MOIP. Otd.geol.* 29 no.2:90-91 Mr-Apr '54. (MIRA 7:7)  
(Kazakhstan--Geology, Stratigraphic) (Geology, Stratigraphic--  
Kazakhstan)

LITVINOVICH, N.V.

Stratigraphy of Carboniferous and Permian deposits of the Dzhez-  
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(Dzhezkazgan--Geology, Stratigraphic)

(MLRA 10:4)

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Coal deposits in the Tarbagatay Range. Nauch.dokl.vys.mikoly;  
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1. Moskovskiy universitet, geologicheskiy fakul'tet, kafedra  
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LITVINOVICH, N.V.; SMELOVSKAYA, M.M.

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4. Paleontology
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(MIRA 18:11)

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DEMENT'YEV, V.A., prof., red.; ROMANOVSKIY, N.T., dots.kand.geog.nauk, red.;  
MEL'NICHUK, S.M., dots., kand, geogr, nauk, red.; GES', N., red.;  
LITVINSKAYA, T., red.

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T.S., red.; DAVITKIN, P.I., red.

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[Problems of construction thermophysics; transactions of  
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industry of the U.S.S.R., February 1-4, 1964 in Minsk]  
Problemy stroitel'noi teplofiz'ki; trudy Mezhvuzovskoi  
nauchnoi konferentsii sovmestno s rabotnikami promyshlen-  
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(Butyraldehyde) (Hexenal)

LITVINOVSKIY, B.Ye.

Dmitrii Konstantinovich Starov; obituary. Meteor. i gidrol.  
no.9:60 S '60. (MIRA 13:8)

(Starov, Dmitrii Konstantinovich, d. 1960)

MUSIYENKO, P.S.; LITVINOVSKIY, G.A.; VERTSMAN, G.Z.

Main trends of technical progress in the development of stations and junctions. Transp. stroi. 15 no.4:38-40 Ap '65.

(MIRA 18:6)

1. Nachal'nik Kiyevgiprotransa (for Musiyenko). 2. Glavnyy inzh. Kiyevgiprotransa (for Litvinovskiy). 3. Rukovoditel' otdeleniya izyskaniy i proyektirovaniya zheleznykh dorog TSentral'nogo nauchno-issledovatel'skogo instituta svyazi (for Vertsman).

*Litvinovskiy, G.A.*  
LITVINOVSKIY, G.A., inzhener

Using nomograms to calculate railroad station installations. Tekh.  
shel.dor. 7 no.6:19-20 Je'48. (MLRA 8:11)  
(Railroads--Stations)

32(3)

SOV/112-59-5-9086

Translation from: Referativnyy zhurnal. Elektrotehnika, 1959, Nr 5, p 97 (USSR)

AUTHOR: Litvinovskiy, G. A., and Gorilovskiy, M. I.

TITLE: Electrified Main-Line Railroads

PERIODICAL: Nauka i zhittya, 1957, Nr 12, pp 21-24 (Original in Ukrainian)

ABSTRACT: There are 20,600 km of railroads in the Ukraine with a freight turnover as high as 153 billion ton/km per year. Electrification of these railroads would tend to increase the freight turnover and to facilitate rural electrification. Technical advantages of electric traction and electric locomotives are indicated. It is expected that 30% of all Ukrainian railroads will be electrified by 1970. Transportation data for the Ukraine is given.

L.G.P.

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LITVINOVSKIY, G.A.

Planning the reconstruction of railroad stations for electric traction.  
Transp. stroi 10 no.11:7-9 H '60. (MIRA 13:11)

1. Glavnyy inzhener Kiyevgiprotransa.  
(Electric railroads--Substations)

LITVINOVSKIY, G.A.; KOROGID, P.Ye.

New developments in the design of intermediate stations.  
Transp. stroi. 13 no.5:50-52 My '63. (MIRA 16:7)

1. Glavnyy inzh. Kiyevgiprotransa (for Litvinovskiy).
2. Glavnyy spetsialist po novym razrabotkam Kiyevgiprotransa  
(for Korogid).

(Railroads--Stations)

TIKHOMIROV, I.G., prof., doktor tekhn.nauk (Gomel'); LITVINOVSKIY, G.A.  
(Gomel'); SHAFIT, Ye.M., kand.tekhn.nauk (Dnepropetrovsk);  
MIKHNEVICH, L.N., kand.tekhn.nauk (Dnepropetrovsk)

New textbook on railroad stations and junctions. Reviewed by  
I.G.Tikhomirov and others. Zhel.dor.transp. 45 no.8:93-95 Ag '63.  
(MIRA 16:9)

1. Glavnyy inzh. Kiyevgiprotransa, Gomel' (for Litvinovskiy).  
(Railroads--Stations)

LITVINOVSKIY, G.A.; KOROGID, P.Ye.

Sequence of construction operations during the rebuilding of  
stations. Transp. stroi. 14 no.2:6-8 F '64. (MIRA 17:4)

1. Glavnyy inzh. Kiyevgiprotransa (for Litvinovskiy).
2. Glavnyy spetsialist po novym razrabotkam Kiyevgiprotransa (for Korogid).

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SOBOL'VA, V.V.; STULOV, N.N.; TUGARINOVA, V.G.; SHAFRANOVSKIY, I.I.;  
SHTERENBERG, A.A.; YANULOV, K.P.

O.M. Ansheles; obituary. Vest. LGU 12 no.18:152-154 '57. (MIRA 11:3)  
(Ansheles, Osip Markovich, 1885-1957)

SVIRIDOV, Vadim Vasil'yevich; VASIL'YEVA, Galina Ignat'yevna;  
ULAZOVA, Anna Romanovna; MALISHEVSKAYA, Lidiya Ivanovna;  
LITVINSKAYA, T., red.; MINCHUKOVA, T., red.

[Handbook of problems and exercises in inorganic chemistry]  
Sbornik voprosov i uprazhnenii po neorganicheskoi khimii.  
Minsk, Vysshaya shkola, 1965. 212 p. (MIRA 18:7)

LITVINSKIY, A.M.

Basic factors influencing boring and blasting operations in  
Karaganda Basin vertical shaft sinking. Izv.AN Kazakh.SSR,Sor.  
gor.dela no.2:58-66 '59. (MIRA 13:4)  
(Karaganda Basin--Shaft sinking)

LITVINSKIY, A.M.

Depth of boreholes in sinking vertical mine shafts under the  
conditions found in the Karaganda coal basin. Trudy Inst. gor.  
dela AN Kazakh. SSSR 10:152-156 '63. (MIRA 16:8)

(Karaganda Basin--Boring)



LITVINSKIY, B.A., inzh.; KARMANOVA, T.S., inzh.

Manufacture of foundry pouring basins using a semidry paste and a friction press. Ogneupory 18 no.6:254-257 Je '53. (MIRA 11:10)

1. Zaved. ogneupernykh izdeliy im. Ordzhenikidze.  
(Foundry machinery and supplies)  
(Refractory materials) (Power presses)

LITVINSKIY, B.A.

[Archaeological study of Tajikistan by Soviet science] Arkheologicheskoe izuchenie Tadzhikistana sovetskoi naukoj. Stalinabad, Izd-vo Akademii nauk Tadzhikskoi SSR, 1954. 80 p. (Akademiya nauk Tadzhikskoi SSR, Stalinabad. Institut istorii, arkheologii i etnografii. Trudy, vol.26) (MLRA 8:10)  
(Tajikistan--Archaeology)

LITVINSKIY, B.A.; DAVIDOVICH, Ye.A.

Preliminary information on the works of Khuttal group in the Vaksh Valley in 1953. Dokl.AN Tadzh.SSR no.11:53-60 '54. (MLRA 9:9)

1. Institut istorii, arkheologii i etnografii AN Tadzhikskoy SSR.  
(Predstavleno deystvitel'nym chlenom AN Tadzhikskoy SSR, prof. A.A. Semenovym.  
(Vaksh Valley--Excavations (Archaeology))

D'YAKONOV, M.M.[deceased]; LITVINSKIY, B.A.

Literature on the archaeology of Tajikistan published in 1953.  
Dokl.AN Tadzh.SSR no.11:81-84 '54. (MLRA 9:9)

1.Institut istorii, arkheologii i etnografii AN Tadzhikskoy SSR.  
Predstavleno deystvitel'nyy chlenom AN Tadzhikskoy SSR, prof.  
A.A. Semenovym.  
(Bibliography--Tajikistan--Archaeology) (Tajikistan--Archaeology--  
Bibliography)

LITVINSKIY, B.A. (Moskva); NESMEYANOV, S.A. (Moskva)

At the ancient banks of the Syr-Darya. Priroda 51 no.10:115-116  
0 '62. (MIRA 15:10)

(Syr-Darya Valley—Paleogeography)

GEY, N.N., kand.tekhn.nauk; POTAPOV, M.G., inzh.; LITVINSKIY, I.A., inzh.

More discussion on the economics of lumber drying by the induction method. Der.prom. 10 no.5:4-6 My '61. (MIRA 14:5)

1. Kiyevprgtekhstroy (for Gey). 2. Glavkiyevstroy (for Potapov).
3. Derevoobrabatyvayushchiy zavod No.1 (for Litvinskiy).  
(Lumber--Drying)

LITVINSKIY, L.M.; MAGINA, Ya.B., starshiy tekhnik

Combination of functions in the servicing of public telephones.  
Vest.sviazi 20 no.6:21 Je '60. (MIRA 13:7)

1. Starshiy inzhener Rishskoy gorodskoy telefonnoy seti (for  
Litvinskiy).  
(Riga---Telephone)

LITVINSKIY, M.P.; ABRAMOVICH, Yu.I.

Detachable filter trap on the cooker. Spirt. prom. 24 no.5:33  
'58. (MIRA 11:9)  
(Distilling industries--Equipment and supplies)



LITVINSKIY, M.P.; ABRAMOVICH, Yu.I.

Special equipment for grinding malt. Spirt. prom. 24 no.6:37  
'58. (MIRA 11:10)  
(Malt) (Milling machinery)

ABRAMOVICH, Yu.I.; LITVINSKIY, M.P.

Mechanical device for acidification of yeast mash. Spirt. prom.  
27 no.6:26-28 '61. (MIRA 14:9)  
(Distilling industries--Equipment and supplies)

AL'TMAN, V. V.; ABRAMOVICH, Yu. I.; LITVINSKIY, M. P.

Hydraulic sandblast cleaning of heat exchangers. Spirt. prom.  
28 no.8:16-17 '62. (MIRA 16:1)

1. Mariinakiy spirtovoy zavod.

(Heat exchangers--Cleaning)

KARPOV, I.P., inzh.; LITVINSKIY, P.G., inzh.; STAROVOYTOV, A.A., inzh.;  
SHINKAREV, B.M., inzh.

Results of welding with a powder-metal wire in assembling  
structures of metallurgical enterprises. Prom. stroi. 41  
no.11:35-38 N '63. (MIRA 17:2)

1. Ministerstvo montazhnykh i spetsial'nykh stroitel'nykh  
rabot UkrSSR.

KARPOV, I.P., inzh.; LITVINSKIY, P.G., inzh.

Mechanization of welding work in the erection of metal structures.  
Mekh. stroi. 20 no.11:15-17 N '63. (MIRA 17:1)

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 9, p 124 (USSR) SOV/124-57-9-10700

AUTHOR: Litvintsev, A. F.

TITLE: Water Losses Attributable to Seepage Along the Main Azovskiy Canal (Poteri vody na fil'tratsiyu po Azovskomu magistral'nomu kanalu)

PERIODICAL: Sb. tr. Yuzhnogo n. -i. in-ta gidrotekhn. i melior., 1956, Nr 4, pp 15-24

ABSTRACT: Bibliographic entry

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*LITVINTSEV, A.I.*

AUTHORS: Koval'skiy, A.Ye., Litvintsev, A.I., Vrzheshech, Ye.Ya. 32-12-42/71

TITLE: AnX-Ray Camera for the Exposure of Polished Sections (Rentgenovskaya kamera dlya s"yemki shlifa).

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 12, pp. 1501-1502 (USSR)

ABSTRACT: The new construction of an X-ray photographic camera suggested by this paper consists in the fact that in this case the film is fixed in a semicyclo, whereas the sample is located in the center of the circle. In the same manner as in Debye's camera it is possible to take X-ray pictures at angles of from 0 to 90° (strictly speaking between 16 and 82°). If all lines are intended to be obtained on one film (for example when investigating phase composition), this can be brought about by taking repeated pictures on one and the same film at different angles. The remaining parts of the film surface are, on this occasion, covered by lead strips. The camera is described as follows: On a base plate, which rests upon 3 screws, 2 rests are firmly mounted, which serve as a base and means of fastening an adjustable curved photo film holder. Above it a screen of similar shape is fitted which is provided with an adjustable slit. The sample is fastened on a movable holder in the curvature axis of the

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An X-Ray Camera for the Exposure of Polished Sections

32-12-42/71

film holder. This holder rests upon 2 brackets which are mounted on the base plate. There is 1 figure.

ASSOCIATION: All-Union Scientific Research Institute for Hard Alloys  
(Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov).

AVAILABLE: Library of Congress

Card 2/2 1. X-ray cameras-Operation 2. X-ray cameras-Application



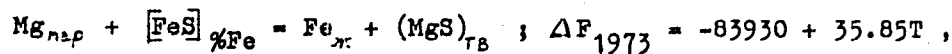
S/148/60/000/009/003/025  
A161/A030

AUTHORS: Oyks, G.N., Khan' Yao-ven', and Litvintsev, A.I.

TITLE: Desulfurization of iron and steel in vacuum

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no.9, 1960, 18-28

TEXT: The Moscow Steel Institute has carried out an investigation in laboratory and in foundry conditions. The observations are discussed with references to four previous Soviet works (Ref. 1-4). The desulfurization degree and rate was different in acid and basic crucibles in vacuum (Fig.1). As had been proven previously (Ref.1) desulfurization in basic crucibles in vacuum is always higher than in acid crucibles. This phenomenon shows that magnesium oxide of the crucible is decomposed by carbon in vacuum. Magnesium raises the degree of desulfurization through the reaction calculated by Chapman and Ta-Li (Ref.3) (V.I.Lakomskiy, "Liteynoye proizvodstvo", 1957, No.1) ✓



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Desulfurization of iron and steel ...

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and hence the conditions were favorable in basic crucibles, but the process did not develop intensely at the residual pressures that were achieved in experiments. Apparently, magnesium only plays a limited part in desulfurization of iron in basic crucibles on account of raising the oxygen content, as has been revealed by R.S.Belyakov (Dissertation for the degree of Candidate of Technical Sciences, Moscow Steel Institute, 1957). Desulfurization increased with raising the temperature of iron, the depth of vacuum, and the higher temperature and longer holding time in the vacuum. The effect of manganese content in iron on desulfurization is known - it raises with dropping temperature of liquid iron. Dzhozef (Ref.4) (Dzhozef and Gol'bruk, Domez, 1934, No.11-12) discovered that in the equilibrium reaction of manganese with sulphur the product of their contents in metal is constant at a given temperature. In temperatures above 1450°C (Fig.4) even an high manganese content (3%) does not reduce sulphur content below 0.1%, and at 1350° only 2% Mn bring the sulphur content to 0.07%. V.G.Burtsev and R.A.Karasev stated the considerable effect of Mn in the content range 1.06-2.36% in vacuum desulfurization (reported at a conference on physico-chemical processes in steelmaking, in 1957). In the subject investigation manganese content

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Desulfurization of iron and steel ...

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was 1.47 and 1.83. It was stated in experiments at the im. Dzerzhinskogo (im. Dzerzhinskiy) plant that manganese is a strong desulfurizer but it has no effect at all if the initial sulphur content in iron is below 0.05% (Fig.7 and 8); Mn content higher than 1.47% has no strong effect. In experiments with ball bearing steel  $\text{ШХ15}$  (ShKh15) in laboratory, in alundum crucible, no desulfurization could be obtained, which may only be explained by low content of silicon, sulphur and other impurities in metal. The mechanism of desulfurization in a vacuum was studied with X-ray diffraction. No  $\text{SO}_2$  gas was found in separating fumes behind the vacuum pump. Condensed powder on a filter placed in front of the vacuum hoses was investigated with standard X-ray cameras, but some highly dispersed powders produced no diffraction lines. These powders were investigated by electron diffraction, with an  $\text{ЭМ-4}$  (EM-4) electronograph. The results lead to conclusion that the structure was a solid solution of FeS in FeO, in heterogeneous compound, of FeO, FeS, or Fe(O, S) type. The FeS phase was revealed by electron diffraction only. The following general conclusions have been made. 1) The degree of desulfuration increases with longer time in vacuum, and it becomes slower with the time. 2) The speed of desulfuration drops with decreasing initial sulphur content. The desulfurization rate is different in graphite,

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Desulfurization of iron and steel ...

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basic and acid crucibles in similar conditions; it drops in respective order. 3) The degree of desulfurization of iron in a vacuum is higher in basic and graphite crucibles than in acid crucibles. 4) Increased manganese content is favorable only when the initial sulphur content in metal is high, but some desulfurization is possible in a vacuum even with a low initial concentration of sulphur. 5) It appears that desulfurization of iron in vacuum is the result of evaporation of sulphur with subsequent compounds formation with iron and manganese vapours in vacuum furnace, up to FeS and Fe, Mn (S), or the low-melting components are evaporating. No elementary sulphur was revealed by X-ray diffraction analysis of the condensate. 6) The sulphur content does not decrease in ball bearing steel in shallow vacuum in foundry conditions. 7) In laboratory conditions with vacuum of  $10^{-1}$  to  $10^{-3}$  mm mercury column, no perceptible sulphur content decrease was revealed also when the sulphur content in steel was low (0.008%). There are 9 figures and 4 Soviet-bloc references.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

SUBMITTED: 16 May 1960

Card 4/4

LITVINTSEV, A. I.

PHASE I BOOK EXPLOITATION SOV/5685

20

Fridlyander, I. N., Doctor of Technical Sciences, and B. I. Matveyev, Candidate of Technical Sciences, eds.

Teploprochnyy material iz spochennoy alyuminiyevoy pudry [SAP]; sbornik statey (Heat-Resistant Material From Baked Aluminum Powder [SAP]; Collection of Articles) Moscow, Oborongiz, 1961. 122 p. Errata slip inserted. 3,550 copies printed.

Reviewers: M. F. Bazhenov, Engineer, and M. Yu. Bal'shin, Candidate of Technical Sciences; Ed.: M. A. Bocharov, Engineer; Ed. of Publishing House: S. I. Vinogradskaya; Tech. Ed.: V. I. Oreshkina; Managing Ed.: A. S. Zaymovskaya, Engineer.

PURPOSE : This collection of articles is intended for scientific workers and engineers in the institute and plant laboratories of the metallurgical and machine-building industry; it may also be useful to instructors and advanced students.

COVERAGE: The 12 articles contain the results of research on the structure, properties, and manufacture of semifinished products  
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Heat-Resistant Material From (Cont.)

SOV/5685

from sintered aluminum powder. The technology for the manufacture of aluminum powder and briquets is described as are sintering processes, and pressing, rolling, drawing, and sheet-stamping methods. The dependence of the properties of semifinished products on the aluminum-oxide content of the powder, on the degree of hot and cold deformation, and on the stresses of pressing is investigated. Also investigated are the mechanical and corrosive properties of semifinished products, the mechanism of hardening of sintered aluminum powder, the reasons for blister formation, and the possibility of recrystallization. Data on sintered aluminum alloys are included. No personalities are mentioned. References in the form of footnotes accompany the articles.

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Gerchikova, N. S., N. I. Kolobnev, M. G. Stepanova, and I. N. Fridlyander. Effect of Aluminum-Oxide Content on the Structure  
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Heat-Resistant Material From (Cont.)

SOV/5685

2.0

and Properties of Pressed Articles From SAP [Sintered Aluminum Powder]

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Stepanova, M. G., G. P. Zenkov, Ye. M. Lekarenko, and L. A. Sarul'. Aluminum Powder for SAP

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The work was carried out with the participation of G. N. Pokrovskaya, Chief of TsZL; R. V. Nesterenko, Acting Chief of the Shop; and Engineers L. I. Kibitova, N. D. Chumak, and N. I. Kolobnev.

Matveyev, B. I., M. G. Stepanova, and N. I. Kolobnev. Effect of Specific Pressure in Pressing on Properties of Semifinished Products From SAP

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Matveyev, B. I., S. I. Nomofilov, and V. A. Shelamov. Pressing of Semifinished Products From SAP

36

The work was carried out with the participation of Engineers A. V. Fedotova and I. R. Khanova, and Senior Technician L. S. Perevyazkin.

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Heat-Resistant Material Prom (Cont.)

SOV/5685

Murzov, A. I. [Candidate of Technical Sciences], S. I. Nomofilov [Engineer], and V. A. Shelamov [Engineer]. Rolling of Sheets From SAP

50

The work was carried out with the participation of Engineer R. P. Filimonova and Technicians V. I. Sverlov and O. A. Kolosov.

Matveyev, B. I., N. A. Davydova, and I. R. Khanova. Study of the Effect of the Degree of Deformation on the Properties and Structure of Pressed Semifinished Products and Cold-Rolled Sheets From SAP

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The work was carried out with the participation of L. S. Perevyazkin and O. A. Kolosov.

Davydov, Yu. P., and G. V. Pokrovskiy. Stamping of Sheets From SAP

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Litvintsev, A. I., and E. P. Belova. X-Ray Diffraction Study of the Oxide Phase in SAP

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Heat-Resistant Material From (Cont.)

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Gorelik, S. S., A. I. Litvintsev, and E. P. Belova. Special Features of Recrystallization of Sintered Aluminum Powder (SAP) 88

Litvintsev, A. I., and V. M. Polyanskiy. On the Nature and Mechanism of Blister Formation in SAP 100

Matveyev, B. I., P. V. Kishnev, and I. R. Khanova. Properties of Semifinished Products From Sintered Aluminum Powder 108

Krivenko, R. A., Ye. A. Kuznetsova, and I. N. Fridlyander. Sintered Aluminum Alloys 113

AVAILABLE: Library of Congress

JA/wrc/jw  
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Card 5/5

88504

S/149/61/000/001/008/013  
A006/A001

11.2221

AUTHORS: Polyanskiy, V.M., Bogolepov, M.G., Litvintsev, A.I., Panov, A.V.

TITLE: Investigation of Gases in Aluminum Powders on a Mass-Spectrometer

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya,  
1961, No. 1, pp. 112 - 120

TEXT: The presence of a great amount of adsorbed gases in solid aluminum is explained by the hygroscopic nature of oxides in the metal. Adsorbed  $H_2O$  is retained in the metal until about  $510^{\circ}C$  when its intensified decomposition by aluminum takes place ( $2Al + 3H_2O = Al_2O_3 + 3H_2$ ). Since adsorption is connected with the magnitude of the specific surface of the adsorbent, a particular high amount of adsorbed gases can be expected in aluminum powders; and since the pulverization of molten Al in the production of powder is connected with a high crystallization rate of the metal, the amount of dissolved gases in the powders must exceed that in the cast metal. An investigation was made to reveal the amount and composition of gases in aluminum powders and to determine the interaction of the gases with the powder material. Degassing of powders and kinetics of gas liberation were also investigated. The experiments were made with powders whose composition is

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Investigation of Gases in Aluminum Powders on a Mass-Spectrometer

given below:

Table 1 Chemical Composition of Initial Aluminum Powders

| No of powder | Content, % |                                |      |          |                  |
|--------------|------------|--------------------------------|------|----------|------------------|
|              | Al         | Al <sub>2</sub> O <sub>3</sub> | Fats | Moisture | Other components |
| 1            | 95,55      | 3,94                           | 0,37 | 0,01     | 0,13             |
| 2            | 86,4       | 13,08                          | 0,27 | 0,07     | 0,23             |

Gas extraction was performed in a vacuum device included into the gas filling system of a mass spectrometer (Figure 1). Pressed cylindrical samples were placed into the extraction assembly and heated by electric current passed through a molybdenum wire. The quantitative analysis of extracted gases was made by heating the sample to 170 and 450°C and by taking mass spectra at each of these temperatures in the range of mass numbers 1 - 44. The results obtained (given in Table 2) show that at 170°C the gas extracted is water vapor. At a higher temperature the gas composition changes. Its basic components are H<sub>2</sub> and CO; a small amount of CH<sub>4</sub> appears and the amount of H<sub>2</sub>O vapors diminishes sharply. The temperature

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## Investigation of Gases in Aluminum Powders on a Mass-Spectrometer

zones of maxima of individual gas component liberation were determined by heating the pressed powder specimens in a vacuum at a rate of  $23^{\circ}$  per minute. Curves of vacuum changes (kinetic curves), ion current curves of the components ( $H_2^{+}$  and  $H_2O^{+}$ ) and temperature curves of the specimens were recorded on the tape of a multi-spot electronic self-recording potentiometer. The kinetic curves were obtained for initial powders (undegassed powders); technically pure Al samples (AD-1); for specimens degassed by heating in vacuum and subsequently held in wet atmosphere with 100% relative moisture at  $25^{\circ}C$ ; for specimens degassed by heating in air and in air under an activated carbon layer, in inert gas stream and in a vacuum. To reveal the possibility of degassing pressed powder specimens by heat treatment experiments were made in different media. (Figure 4). It is shown that degassing of powders by heating is possible under the condition that the vapors or gases liberated are removed by vacuum treatment or by an inert gas flow. The following method was found to be the most suitable one: after degassing, heat treatment of the specimen in an argon flow (0.05  $O_2$ , 0.23  $N_2$ , the rest argon) by heating to  $600^{\circ}C$  subsequent cooling to  $250^{\circ}$  at a rate of  $6^{\circ}$  per minute, and then to  $20^{\circ}C$  at a rate of  $15^{\circ}$  per minute. ✓

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Investigation of Gases in Aluminum Powders on a Mass-Spectrometer

Figure 4

Vacuum changes during heating of specimens after different heat treatment; 1 - non treated; 2 - vacuum-annealed and held in air for 5 min; 3 - annealed in an argon flow up to 600°C, cooled in the flow to 250°C in a furnace and then to 30°C by high-speed process; held in air for 10 min; 4 - non treated AD-1 specimen; 5 - annealed in a vacuum and heated to 600°C in air; 6 - annealed in air to 600°C; 7 - annealed in an argon flow up to 600°C and extracted from the flow at 600°C; 8 - annealed in air to 600°C under a layer of activated carbon; 9 - annealed in a vacuum up to 600°C and held in a wet chamber at 25°C for 20 hrs; 10 - temperature changes of the sample.

There are 4 tables, 4 figures and 3 Soviet references.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute); Laboratoriya izmeritel'nykh priborov (Laboratory of Measuring Instruments)

SUBMITTED: December 28, 1959

Card 11/11

ACCESSION NR: AP4040705

S/0135/64/000/006/0036/0037

AUTHOR: Litvintsev, A. I. (Candidate of technical sciences);  
Guk, Yu. P. (Engineer); Baryshev, S. Ye. (Engineer); Kushner, S. R.  
(Engineer); Ivashko, K. V. (Engineer)

TITLE: Revealing of line laminations before argon arc welding of  
AMg5 and AMg6 alloys

SOURCE: Svarochnoye proizvodstvo, no. 6 (630), 1964, 36-37

TOPIC TAGS: aluminum alloy, AMg5 alloy, AMg6 alloy, alloy welding,  
alloy sheet welding, argon arc welding, aluminum alloy sheet defect,

ABSTRACT: Laminations are one of the defects encountered in AMg5  
and AMg6 aluminum-alloy sheets and plates. These laminations are  
small nonmetallic particles mixed with metal. The laminations origi-  
nate from slag inclusions crushed during rolling and elongated in  
the direction of the rolling. The laminations promote the formation  
of blow holes and porosity in welds. X-ray inspection has shown that  
95% of the porosity is associated with laminations. The individual

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ACCESSION NR: AP4040705

pores in sheets 3—5 mm thick can be as much as 2—3 mm in diameter. The most effective way of detecting laminations in aluminum-alloy sheets is the ultrasonic echo method with stimulation of waves normal to the sheet surface. The method detects defects 1 mm wide and 30 mm long at a distance of 300—400 mm from the point where ultrasonic vibrations are applied. Orig. art. has: 2 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 00

ATD PRESS: 3070

ENCL: 00

SUB CODE: MM

NO REF SOV: 000

OTHER: 000

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L 10814-65 EWT(m)/EPR/T/IMP(k)/EWP(b) Ef-4/Ps-4 ASD(m)-3/SSD(a)/BSD  
 ACCESSION NR: AT4043511 JD S/3167/64/000/003/0159/0169

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TITLE: Study of recrystallization of sintered aluminum powder (SAP)

SOURCE: Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy  
 promyshlennosti. Sektsiya metallovedeniya i termicheskoy obrabotki.  
 Metallovedeniye i termicheskaya obrabotka, no. 3, 1964, 159-169

TOPIC TAGS: aluminum powder, sintered aluminum powder, SAP, SAP cold  
 rolling, SAP hot rolling, rolled recrystallization, SAP recrystalliza-  
 tion

ABSTRACT: The recrystallization mechanism of hot and cold rolled SAP  
 with 4%  $Al_2O_3$  was investigated. The hot extruded SAP billets were  
 hot rolled in three steps at 450--480C with 12.5, 22, and 22% reduc-  
 tion, and then cold rolled with 65% reduction. The rolled specimens  
 were annealed at 150--700C for 1 hr and air cooled. The formation of  
 recrystallization centers in the cold-rolled specimens was found to

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begin at the same temperature as in pure aluminum, i.e., at 200—225C, whereas the grain growth begins at 350—375C owing to the retarding action of  $Al_2O_3$  particles. Accordingly, the hardness-annealing temperature curve shows hardness drops at 200—250C and at 350—400C (see Fig. 1 of the Enclosure). The x-ray diffraction patterns showed that heating of cold-rolled SAP to 250C is accompanied by a diminishing of scattering caused by texture. Heating to 450C almost completely eliminates the texture maxima. The x-ray diffraction patterns of hot-rolled SAP are identical to those of extruded billets. Only at 625C, i.e., close to the melting point of aluminum, does the texture scattering increase, indicating what is apparently the beginning of grain growth. An interesting phenomenon observed during these experiments was a migration of insoluble oxide particles in a solid matrix under the effect of diffusion processes of nuclei growth. The phenomenon is brought about by a redistribution of vacancies occurring under the effect of surface tension. Orig. art. has: 8 figures.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti (Scientific Technical Society of the Machine Construction Industry)

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ENCLOSURE: 01

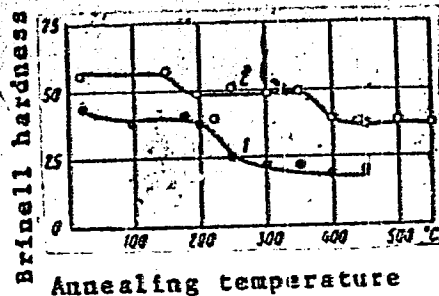


Fig. 1. Dependence of hardness of cold rolled (65% reduction) aluminum (1) and SAP (2) on annealing temperature.

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head; KUSHNER, S.P., head; FASHEKO, K.V., head.

Revealing steady exfoliation before argon arc welding of the  
AMg and AMg alloys. Svar. protiv. no. 6196-87 to '64  
(MIRA 1812)